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Total Number of Pages in This Submission

Application Number 10/763,514

Filing Date 1-22-04

First Named Inventor Susan G. Yan et al.

Art Unit 1745

Examiner Name Ben Lewis

Attorney Docket Number GP-303570

ENCLOSURES (Check all that apply)

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SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Warn, Hoffmann, Miller & LaLone, P.C.		
Signature			
Printed name	John A. Miller		
Date	8-8-06	Reg. No.	34985

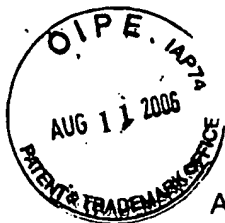
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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 10/763,514
Filing Date: January 22, 2004
Applicant: Susan G. Yan et al.
Group Art Unit: 1745
Examiner: Ben Lewis
Title: DURABLE MEMBRANE ELECTRODE ASSEMBLY
CATALYST COATED DIFFUSION MEDIA WITH NO
LAMINATION TO MEMBRANE
Attorney Docket: GP-303570

Mail Stop Amendment
Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE TO OFFICE ACTION

This is a Response to the Office Action mailed July 25, 2006, to which a response is due by October 25, 2006. Claims 15-18 remain pending in this application. These claims stand rejected under 35 USC §103(a) as being unpatentable over U.S. Patent No. 6,444,341 issued to Yen et al. in view of U.S. Patent No. 6,893,763 issued to Fan et al. In view of the following remarks, this rejection is traversed, and reconsideration of this application is respectfully requested.


Independent claim 15 claims a method for fabricating a membrane electrode assembly that includes depositing a cathode side catalyst layer on a cathode side diffusion media layer; spraying an ionomer layer on the cathode side catalyst layer; depositing an anode side catalyst layer on an anode side diffusion media layer; spraying an ionomer layer on the anode side catalyst layer; positioning the diffusion media layers on opposite sides of a membrane; and operating the fuel cell to cause the diffusion media

layers to form to the membrane so that the diffusion media layers do not need to be bonded to the membrane prior to operating the fuel cell.

U.S. Patent No. 6,444,341 issued to Yen discloses a polymer electrolyte membrane assembly for a fuel cell that includes depositing a catalyst on a carbon paper electrode, coating the electrode with a liquid electrolyte polymer and bonding the electrode to an electrolyte membrane by a hot-pressing operation. (Column 6, lines 48-67).

Yen et al. does not appear to teach or suggest depositing a catalyst layer on a diffusion media layer, spraying an ionomer layer on the catalyst layer and then forming the diffusion media layer including the catalyst to a membrane through the operation of the fuel cell. Contrary, Yen et al. deposits the catalyst on the membrane, and forms the electrode including the catalyst to the membrane by a hot-pressing step.

U.S. Patent No. 6,893,763 issued to Fan et al. discloses applying a catalyst including an ionomer directly to a membrane, and then assembling the membrane electrode assembly including the catalyst deposited membrane and gas diffusion layers. Fan et al. states, "[b]ecause the catalyst ink is directly deposited on the membrane, no hot press step is necessary to fabricate the membrane electrode assembly (MEA)." (Column 5, lines 4-6).



Applicant submits that Fan et al. does not provide the teaching missing from Yen et al. to make Applicant's independent claim 15 obvious. As discussed above, Fan et al. only teaches depositing the catalyst directly to the membrane, and not to the diffusion media layers. In Applicant's invention, the catalyst is applied to the diffusion media layers, and then the diffusion media layers are bonded to the membrane through operation of the fuel cell. Fan et al. does not teach bonding the diffusion media layers to the membrane because this would not be required as the catalyst is already on the membrane, and not on the diffusion media layer. Contrary, Fan et al. shows a sub-gasket

16 and 17 between the catalyst layers 14 and 15 and the diffusion media layers, clearly showing that the diffusion media layers are not bonded to the membrane.

The Examiner is respectfully reminded of the requirements for a *prima facie* case of obviousness. Particularly, as set forth in MPEP 2143, in order to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Further, the prior art references must teach or suggest all of the claim limitations.

Applicant submits that the combination of Yen et al. and Fan et al. do not establish a *prima facie* case of obviousness because there is no teaching in either of these references of depositing a catalyst layer on a diffusion media layer, then spraying an ionomer layer on the catalyst layer, then positioning the diffusion media layer adjacent to a membrane, and then bonding the diffusion media layer to the membrane through the operation of the fuel cell. Therefore, it is respectfully requested that the §103(a) rejection be withdrawn.

It is now believed that this application is in condition for allowance. If the Examiner believes that personal contact with Applicant's representative would expedite prosecution of this application, he is invited to call the undersigned at his convenience.

Respectfully submitted,

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